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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
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Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0605170D8Z / Support to Networks and Information Integration
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COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	51.880	6.996	12.583	11.450	-	11.450	15.041	14.841	14.242	14.510	Continuing	Continuing
170: Support to NII	51.880	6.996	12.583	11.450	-	11.450	15.041	14.841	14.242	14.510	Continuing	Continuing

Note

The FY2019 funding request was reduced by 2.012 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

This program element supports studies and analysis in the areas of networks, information integration, defense-wide command and control (C2), and communications. This program is funded under Budget Activity 6, RDT&E Management Support because it includes studies and analysis in support of RDT&E efforts.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019 Base</u>	<u>FY 2019 OCO</u>	<u>FY 2019 Total</u>
Previous President's Budget	7.246	12.583	13.856	-	13.856
Current President's Budget	6.996	12.583	11.450	-	11.450
Total Adjustments	-0.250	0.000	-2.406	-	-2.406
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.241	-			
• Program Adjustment	-0.009	-	-0.394	-	-0.394
• Other Adjustments	-	-	-2.012	-	-2.012

Change Summary Explanation

Program Change Summary:

FY 2017: SIBR/STTR Transfer -0.241 million. Program Adjustment -0.009 million.

FY 2018: No change.

FY 2019: Under-execution -2.012 million, Program Adjustment -0.394 million.

UNCLASSIFIED

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Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605170D8Z / Support to Networks and Information Integration				Project (Number/Name) 170 / Support to NII			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
170: Support to NII	51.880	6.996	12.583	11.450	-	11.450	15.041	14.841	14.242	14.510	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding supports Global Positioning System (GPS) User Equipment Synchronization with GPS space and operational control segments to conduct DoD CIO oversight of Global Positioning System (GPS) management and planning activities required for meeting JCIDs requirements. Funding supports policy and guidance for incorporation of alternative means of PNT delivery to augment GPS. Funding also supports the DoD's PNT Oversight Council and inputs into interagency activities under the National Space-Based Positioning, Navigation, and Timing Executive Committee.

The Integrated Planning and Management Project encompasses the National Leadership Command Capability (NLCC) Management Office's (NMO) responsibilities for establishing overall DoD policy and oversight with respect to the capability development, interoperability, standards, and architecture for National and Nuclear Command Capabilities for our National Leadership. The NMO serves as the single point of contact within the Department for policy, long-range plans, programs and budget, integrated mission advocacy, and management of decision-maker capabilities. NMO's objective is to ensure capabilities are in place to provide complete and timely situational awareness and decision tools for senior decision-makers. Additionally, the NMO assists the DoD CIO as the Executive Agent and primary OSD advocate for the White House Military Office with oversight of a wide range of DoD command, control, and communications (C3) assets and oversees the efforts of the Services and Agencies in the design, integration, and deployment of critical and sensitive C3 capabilities. Three overall areas of focus include: 1) National Senior Leader C3 Systems, National Security/Emergency Preparedness (NS/EP), DoD support to Civil Authorities; Continuity of Government (COG); 2) Nuclear C2, Integrated Missile Defense, Tactical Warning, Global Strike; and 3) Cyber Mission Indications and Warnings.

The Mission Assurance Risk Management System (MARMS) is a Department of Defense (DoD) risk management system that directly supports the Secretary of Defense's Mission Assurance (MA) responsibilities as defined in the DoD Directive (DoDD) 3020.40, Mission Assurance, with the objectives of creating resilience and supporting critical processes to enable the protection of assets and ensuring defense critical missions. MARMS will function as an integration framework spanning multiple security domains that will support risk-informed decision-making, resource investment, and improved synchronization at different levels within DoD. MARMS supports multiple Joint Capability Areas (JCA): Command and Control, Logistics, and Protection. MARMS is an acquisition category (ACAT) III software program and has a "high" impact value for each of the three security objectives (confidentiality, integrity, and availability) in accordance with DoD Instruction (DoDI) 8510.01 and the Committee on National Security Systems Instruction (CNSSI) 1253.

Defense Architecture Support includes development, analysis, testing and evaluation of DoD IT Enterprise Reference and solution architecture products in support of the DoD's Joint Information Environment and the closely related Mission Partner Environment. This work also includes improvements to processes that support registration and storage of the Department's enterprise architecture (formerly called DARS). The Department maintains a catalog of architecture data holdings and provides users the ability to store, search, retrieve, and use DoD architecture data through capabilities provided by the architecture portal. The portal is a central, federated hub for discovery, accessibility, understandability, and reusability of architectures. With the ability to import different architecture tool data and display disparate architecture data in a uniform, consistent method for ease of use and understanding. The portal provides a federated environment for sharing of architectures,

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mission threads, and other related capability integrated information between various authoritative repositories to increase effectiveness and efficiency of decision-making in a dynamic environment by our customers. Implementations are accessible on both the NIPRNET (unclassified) and SIPRNET (Collateral Classified). Key features of the Defense Architecture Support program focus on: (1) Research and Development of JIE and MPE architectures, (2) Making JIE and MPE architecture data visible, accessible, trusted, understandable, and interoperable (2) enabling reuse of validated architecture data to build "composite" integrated architectures; (3) enabling architecture analysis; and, (4) integrating architecture data into the DoD mainstream decision-making processes. The Department of the Air Force, Army, and Navy CIO's collaborate in the development of federation web services via the Enterprise Architecture and Engineering Panel under the oversight of the DoD CIOs Enterprise Architecture and Service Board to ensure DoD-wide access to and usability of all components of the composite DoD enterprise architecture model, enterprise services, data and technical standards.				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019
Title: Support to NII		6.996	12.583	11.450
FY 2018 Plans: FY 2018 Plans (\$2.905 million): Global Positioning System (GPS) User Equipment Synchronization with GPS space and control segments to conduct DoD CIO oversight of Global Positioning System (GPS) management and planning activities required for meeting JCIDs requirements and supporting the National Space-Based Positioning, Navigation and Timing Executive Committee. Funding will support: - Manage the GPS Security Policy (DoDM-O4650.11). - Manage the Information Assurance/COMSEC elements of DoDM-O4650.11. - Develop the NAVWAR manual (DoDM-4650.ed). - Continue implementation of the GPS Protection Profile matrix from Navigation Warfare Concept of Operations in conjunction with Warfighting Operations Plans (OPLANS) and Contingency Plans (CONPLANS) in coordination with US STRATCOM. - Manage PNT Navigation Warfare Instruction and Annexes to all the Operations Plans (OPLANS) and Contingency Plans (CONPLANS) in coordination with US STRATCOM. - Manage NextGen interfaces with the GPS Wing, Joint Program Development Office (JPDO), and Air Force. Continue implementation of Red Key Sundown Policy. - Provide staff support, perform research and conduct studies as directed by DEPSECDEF in his role as co-chair of the National Executive Committee for Space-Based PNT and for DoD CIO in his role as co-chair of the Executive Steering Group. - Perform annual update of National Five-year Plan for Space-Based Positioning, Navigation and Timing (PNT). - Apply Navigation Warfare Concept of Operations via the Joint Navigation Warfare Center (JNWC) and US STRATCOM to develop Doctrine, Tactics, Techniques and Procedures, Training, Equipment Validation and Material Solutions to Navigation Warfare challenges to the Military Services and Combatant Commanders in the scenarios defined in the CONPLANS and OPLANS. - Manage and implement the DoD PNT investment strategy using the NetCentric Operations CPM portfolio to insure PNT material solutions are developed in a synchronized fashion in JCIDs, DAS, and PPBE.				

UNCLASSIFIED

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018
<ul style="list-style-type: none"> - Implement additional Instructions (DoDIs) for public affairs and receiver certification, and DoDM for security policy. - Manage inventory of DoD GPS receivers. - Analyze and promote alternative PNT delivery means for inclusion in the force structure for force protection. - Biennially task Intelligence Community (IC) to assess threat vectors to GPS and other means of PNT delivery; biennial operational assessments to reveal gaps in PNT delivery against OPLANS and CONPLANS of COCOMS; maintenance of PNT equipment inventories, refreshed biennially. - Develop Directives, Instructions, and Manuals for implementation of the PNT Strategy within the Department. - Continue special task directed by DCIO to address acceleration of development and fielding of advanced GPS receivers in the Joint Force. - Maintain and update inventory of existing GPS receiver equipage; expand to include antennae and antennae electronics; expand to include delivery of PNT via other-than-GPS equipment. - Address prioritized platforms in fielding plans and guidance to Services. - Develop MGUE "Roadmap" illustrating necessary fielding milestones for Joint Force MGUE equipage. - Administer PNT Council within DoD via supporting DoDDs and DoDIs, agendas and minutes for Council meetings, Council task disposition and annual report to Congress. - Develop 2018 FRP. <p>FY 2017 Accomplishments (\$3.375 million)</p> <p>\$2.000 million - NC3 Modeling and Simulation and Analysis - The NC3 system is a complex architecture that utilized a "system of systems" approach. The NC3 model focused on communications after a high altitude electromagnetic pulse (HEMP) event. This funding focused on expanding the current NC3 modeling to additional survivable communications systems. The goal was to provide insight on operational impact of changes/degradation of single or multiple systems - supports planning, architecture, and investments.</p> <p>- Provided direction and support to the Defense Information Systems Agency / Joint Systems Engineering and Integration Office (DISA/JSEIO) in developing campaign-level modeling and simulation tools for NC3. The tools expanded on the Joint Operations Visualization Environment (JOVE), Modeling and Simulation for Strategic Communications (MASSC), NC3-N Executable Architecture Management System (NC3-N ExAMS) and NC3 Integrated Scenario Modeler (NISM).</p> <p>Continued IT Enterprise and solution architecture development, analysis, and registration processes.</p> <p>FY 2019 Plans:</p> <p>FY 2019 Plans (\$2.748 million):</p>			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018
<p>Global Positioning System (GPS) User Equipment Synchronization with GPS space and control segments to conduct DoD CIO oversight of Global Positioning System (GPS) management and planning activities required for meeting JCIDs requirements and supporting the National Space-Based Positioning, Navigation and Timing Executive Committee. Funding will support:</p> <ul style="list-style-type: none"> - Manage the GPS Security Policy (DoDM-O4650.11). - Manage the Information Assurance/COMSEC elements of DoDM-O4650.11. - Develop the NAVWAR manual (DoDM-4650.ed). - Continue implementation of the GPS Protection Profile matrix from Navigation Warfare Concept of Operations in conjunction with Warfighting Operations Plans (OPLANS) and Contingency Plans (CONPLANS) in coordination with US STRATCOM. - Manage PNT Navigation Warfare Instruction and Annexes to all the Operations Plans (OPLANS) and Contingency Plans (CONPLANS) in coordination with US STRATCOM. - Manage NextGen interfaces with the GPS Wing, Joint Program Development Office (JPDO), and Air Force. Continue implementation of Red Key Sundown Policy. - Provide staff support, perform research and conduct studies as directed by DEPSECDEF in his role as co-chair of the National Executive Committee for Space-Based PNT and for DoD CIO in his role as co-chair of the Executive Steering Group. - Perform annual update of National Five-year Plan for Space-Based Positioning, Navigation and Timing (PNT). - Apply Navigation Warfare Concept of Operations via the Joint Navigation Warfare Center (JNWC) and US STRATCOM to develop Doctrine, Tactics, Techniques and Procedures, Training, Equipment Validation and Material Solutions to Navigation Warfare challenges to the Military Services and Combatant Commanders in the scenarios defined in the CONPLANS and OPLANS. - Manage and implement the DoD PNT investment strategy using the NetCentric Operations CPM portfolio to insure PNT material solutions are developed in a synchronized fashion in JCIDs, DAS, and PPBE. - Implement additional Instructions (DoDIs) for public affairs and receiver certification, and DoDM for security policy. - Manage inventory of DoD GPS receivers. - Analyze and promote alternative PNT delivery means for inclusion in the force structure for force protection. - Biennially task Intelligence Community (IC) to assess threat vectors to GPS and other means of PNT delivery; biennial operational assessments to reveal gaps in PNT delivery against OPLANS and CONPLANS of COCOMS; maintenance of PNT equipment inventories, refreshed biennially. - Develop Directives, Instructions, and Manuals for implementation of the PNT Strategy within the Department. - Continue special task directed by DCIO to address acceleration of development and fielding of advanced GPS receivers in the Joint Force. - Maintain and update inventory of existing GPS receiver equipage; expand to include antennae and antennae electronics; expand to include delivery of PNT via other-than-GPS equipment. - Address prioritized platforms in fielding plans and guidance to Services. 			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018
<p>- Develop MGUE "Roadmap" illustrating necessary fielding milestones for Joint Force MGUE equipage.</p> <p>- Administer PNT Council within DoD via supporting DoDDs and DoDIs, agendas and minutes for Council meetings, Council task disposition and annual report to Congress.</p> <p>FY 2019 Plans (\$3.800 million)</p> <p>Continue NC3 Modeling and Simulation and Analysis – Continue to provide direction and support to the DISA/JSEIO in developing campaign level modeling and simulation tools for NC3. The research and development of the tools will continue to increase the capabilities of modeling and simulation for strategic communications (MASSC) (conferencing capabilities), NC3-N executable architecture management system (NC3-N ExAMS) (analysis of nodes, metrics and assets associated with a Navy communications system), joint operations visualization environment (JOVE) and NC3 integrated scenario modeler (NISM) (provide extendable, transparent multi-level simulations of scenarios).</p> <p>- \$0.800 million – Continue to perform financial database analysis and use the R-DOCs and P-DOCs to create a new structure for the NLCC Investment Strategy. Continue to build automatic extraction tools for the R=DOCs and P-DOCs. Continue developing program lists using programmatic data in Excel. Continue to develop an XML Parser to move data to into a single database to work on Schedule Views (GANTT) and move to a roadmap format, starting off as a manual process, and leading to an automated process.</p> <p>FY 2019 Plans (\$4.040 million)</p> <p>System Engineering and Agile Development per MARMS Requirements Definition Package(RDP)-1. In FY19 MARMS will continue development of CD1 Information Sharing, CD2 Assessments, and CD3 Enhanced Stakeholder Systems to an Initial Operational Capability (IOC). This will provide the department with a single repository of DCI and AT data to perform analysis and manage risk per DODD 3020.40. The development focus in FY19 will be on the development and implementation of the Mission Assurance Workspace and Viewer on SIPRNet and JWICS. The MA Workspace and Viewer will provide the department's leadership with a consolidated MA dashboard, and analytical capabilities to perform planning and analysis of Mission Assurance activities per DoDD 3020.40 and 3020.45.</p> <p>Continue IT Enterprise and solution architecture development, analysis, and registration processes.</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement:</p> <p>Decrease supports contract support to Global Positioning System (GPS) User Equipment Synchronization with GPS space and operational control segments to conduct DoD CIO oversight of Global Positioning System (GPS) management and planning activities required for meeting JCIDs requirements. Decrease also supports reduced contract support to the Mission Assurance</p>			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018
Risk Management System (MARMS) is a Department of Defense (DoD) risk management system that directly supports the Secretary of Defense's Mission Assurance (MA) responsibilities as defined in the DoD Directive (DoDD) 3020.40, Mission Assurance, with the objectives of creating resilience and supporting critical processes to enable the protection of assets and ensuring defense critical missions.			
Accomplishments/Planned Programs Subtotals		6.996	12.583
C. Other Program Funding Summary (\$ in Millions)			
N/A			
Remarks			
D. Acquisition Strategy			
N/A			
E. Performance Metrics			
<p>PNT Performance Metrics</p> <ul style="list-style-type: none"> - Implement and successfully manage PNT Navigation Warfare Instructions and Manuals subordinate to DoDD 4650.05 and Annexes to applicable Operations Plans (OPLANS) and Contingency Plans (CONPLANS) in coordination with the appropriate Unified Combatant Command - Implement the recommendations of the Analyses of Alternatives for the CIO and DCIO C4IIC Global Positioning System (GPS) portfolio of Position, Navigation, and Timing (PNT) programs and activities and additional PNT alternatives included in the US Army PNT Assurance AoA and the PNT Science and Technology Roadmap. - Provide staff support, perform research and conduct studies as directed by the CIO and DCIO C4IIC relating to the Global Positioning System (GPS) portfolio of Position, Navigation, and Timing (PNT) programs and activities and other forms of PNT delivery. <p>Integrated Planning & Management Performance Metrics:</p> <ul style="list-style-type: none"> - Continue development of the required infrastructure to support Senior Leader Secure Mobile Communications. (measure of systems upgraded/enhanced) - Continue development of the Overarching NLCC Initial Capabilities Document JROCM taskings. Includes both the development of measures to inform subordinate JCIDS documents as well as a roadmap and investment strategy for the sustainment and modernization of the NLCC. - Continue policy development for National Leadership Command Capabilities (NLCC) directives (DoDDs) and instructions (DoDIs) (e.g., updates to DoDI for NC3 Management, develop DoDI for NC3 Governance, etc.). <p>DARS Performance Metrics:</p> <ul style="list-style-type: none"> - Timely development and issuance of policy, guidance, processes, and technologies to build, populate, govern, operate, and protect the Network. - Policies developed and issued for GIG design, architecture content management, implementation, and operations. 			